

# CONCISE, INTERACTIVE E-LEARNING MODULES FOR STUDENT LECTURE PREPARATION

Margaret J. Wegener<sup>a</sup>, Tim J. McIntyre<sup>a</sup>, Dominic McGrath<sup>b</sup>, Cavin Talbot<sup>a</sup>

Presenting Author: Margaret Wegener ([wegener@physics.uq.edu.au](mailto:wegener@physics.uq.edu.au))

<sup>a</sup>School of Mathematics and Physics, The University of Queensland, St Lucia QLD 4072, Australia

<sup>b</sup>Teaching and Educational Development Institute, The University of Queensland, St Lucia QLD 4072, Australia

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## ABSTRACT

To ready students to learn in lectures, we have developed a range of interactive modules to provide targeted preparation for distinctly different courses in undergraduate physics. Using HTML5, modules are suited to all internet-capable devices (computers, tablets and smartphones). Evidence of usage analytics, student surveys and focus groups show these modules are useful in supporting and encouraging students' class preparation. We have targeted student cohorts who are transitioning to university and those continuing physics studies in second-year.

Our modules include text, images, videos, interactive simulations and self-check questions. In each course we provided online modules for some lectures and textbook readings for the rest. Both cohorts found the modules helpful and enjoyable. Students were more likely to use the online modules than the respective textbook, and felt more prepared for class using them (76% frequently or always prepared) than the textbook (36% frequently or always prepared).

Course cohorts were significantly different in their prior physics study and gender. Transitioning students identified different device preferences, responses and usage patterns to second-year students, particularly using a textbook far less often and feeling less prepared when they did, and finding self-check questions more useful than advanced students did.

Modules are available at <http://www.physics.uq.edu.au/people/mcintyre/fiveminutephysics/>.

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